

Utah Division of Radiation Control

NRC Activities

Utah Radiation Control Board Meeting
November 13, 2012

1) 2 NRC Branch Technical Positions (BTP)
[BTP = Guidance]

a) Concentration Averaging & Encapsulation

b) Import of Non-U.S. Origin Radioactive
Sources

2) Draft NRC Rulemaking – 10 CFR 61 Revisions
Site-specific Analysis

3) Draft NRC Environmental Evaluation
Blending LLRW Ion Exchange Resins

Draft Concentration Averaging & Encapsulation BTP, Rev. 1

- Published - June 11, 2012 (*Federal Register*)
 - Comment Period Closed - October 8
 - NRC reviewing and evaluating comments received
 - Complete final BTP by mid-2013
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- Provides guidance to waste generators on how to apply rule allowing averaging radionuclide concentrations
 - Adds new section on “Alternative Approaches,” to allow for site- and waste-specific approaches to be approved
 - Incorporates more risk-informed / performance-based approach
 - Rewritten to add additional clarification to existing BTP (1995)

Draft Concentration Averaging & Encapsulation BTP, Rev. 1

Comments

- NRC collaborative effort to engage stakeholders throughout the revision process
 - Post final BTP – Importance of additional stakeholder meetings & Agreement State staff training
- Waste Acceptance Criteria (WAC)
 - Need to preserve existing waste classification tables
 - Potential for errors in waste packaging/classification in order to comply with disposal site's unique WAC
- Resource commitments to conduct review and evaluation of alternative approaches

Import of Non-US Origin Radioactive Sealed Sources BTP (Rev. 1)

- Published: October 22, 2012 (*Federal Register*)
- Comment Closes: December 21
- **History:** common for U.S. manufacturers to receive spent / disused sealed sources from foreign countries for recycle / disposal → 1:1 exchange
- **Proposal:** allow U.S. manufacturers to receive foreign source(s) even when its origin / point of use is unknown or uncertain – based on good faith effort documentation
- **DRC Review Status**
 - DRC Comments, Working Draft – submitted March 9
 - DRC Comments, Proposed BTP (no substantive change from working draft) – in process

NRC Draft Rules

10 CFR 61, Site-Specific Analysis Rulemaking

History:

- 2009: 2 Stakeholder Workshops 9/2/09 – Bethesda, MD
9/23/09 - SLC, UT *
- 2011: 1 Stakeholder Workshop Rockville, MD
- 2012: 3 Stakeholder Workshops
 - March 2 – Phoenix, AZ *
 - May 15 – Dallas, TX *
 - July 19 – Rockville, MD *

Schedule:

- Draft proposed rule – public comment: mid-Dec. 2012
- Proposed rule submitted to Commission: July 2013
- Final rule: July 2014

* DRC staff participated, in person or by webinar

NRC Draft Rules: Site-Specific Analysis

- October, 2011 NRC Preliminary Draft
 - Sent to Agreement States
- **January 19, 2012 Commission Direction**
 - 1) Flexibility to use modern ICRP dose methodology
 - 2) 2 tiered approach
 - Tier 1: Compliance Period – “*reasonably foreseeable future*”
 - Tier 2: Performance Period – something longer
 - 3) Waste Acceptance Criteria (WAC) Flexibility
 - Disposal site criteria:
 - Performance Assessment (PA) Model
 - Inadvertent Intruder Analysis, and
 - WAC
 - 4) Rule Compatibility
 - Ensure alignment with States / provide flexibility

To determine how
generator classifies LLRW
(DOE Approach)

NRC Draft Rules: Site-Specific Analysis

- Considerations – Period of Performance (POP) for use in Performance Assessment (PA) Models
 - Short-lived isotopes (e.g., $T_{1/2} < 50$ yrs, e.g. Cs-137)
 - POP: 500-1,000 yrs.
 - Long-Lived Isotopes (w/ decreased progeny risk)
 - $T_{1/2} \geq 50$ yrs.
 - POP: 10,000 yrs.
 - Depleted Uranium (DU) (w/ increased progeny risk)
 - POP: $\geq 10,000$ yrs. (existing Utah rule)

NRC Draft Rules: Site-Specific Analysis

- Considerations:

1) No NRC LLRW classification limits for Ra-226 ($C_{wRa-226}$)

2) All Host States have $C_{wRa-226}$ limits (SC, TX, **UT**, WA)

- Class A Limits: $C_{wRa-226} < 10,000$ pCi/gm

- Class C Limits: $10,000 < C_{wRa-226} < 100,000$ pCi/gm

- Greater than Class C (GTCC) Limits:
 $C_{wRa-226} > 100,000$ pCi/gm

Why Important?

a) Naturally Occurring Uranium = U-238, U-234, U-235

b) Serial Decay:

U-238 → Th-234 → Pa-234 → **U-234** → Th-230 → **Ra-226** → Rn-222

NRC Draft Rules: Site-Specific Analysis

- Considerations – Proposed Institutional Control Period
 - Some stakeholders – asked for increase > 100 years
 - Impacts: Class definitions
Inadvertent intruder analysis / assumptions
- Considerations – Waste Acceptance Criteria
 - More confusion for LLRW generators
 - More burden on Host States (SC, TX, **UT**, WA)
 - NRC must preserve existing LLRW classification system

NRC Draft Rules: Site-Specific Analysis

- Considerations – Waste Acceptance Criteria
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- Considerations – Continued Public and Stakeholder involvement
 - NRC sponsored in sited states

NRC Draft Evaluation: Alternatives for Handling LLRW Nuclear Power Plant (NPP) Spent Ion Exchange Resins (SIER)

- Published – September 20, 2012 (*Federal Register*)
- Comment Closes – January 18, 2013
- Originated from January 2010 Blending Workshop
 - Stakeholders interested in environmental impacts of LLW blending
- Staff included this evaluation in its recommended Option (#2) in SECY-10-0043

NRC Draft Evaluation: SIER Alternatives – cont'd

- Disposal Alternatives:
 - Alternative 1A: *mechanical mixing*
 - Blend Class A, B, C → Class A → disposal
 - Alternative 1B: *pyrolysis, superheated steam (PSS)*
 - Blend Class A, B, C → Class A → disposal
 - Alternative 2: *no blending / no storage*
 - Class A, B, and C → direct disposal
 - Alternative 3: *storage / disposal*
 - Class A → direct disposal @ LLRW site (A)
 - Class B,C → long term NPP storage (20 yr), then B-C disposal

NRC Draft Evaluation: SIER Alternatives – cont'd

- Disposal Alternatives – cont'd
 - Alternative 4A: PSS / Volume Reduction (VR)
 - Class A → direct disposal @ LLRW site (A)
 - Class B,C → PSS / VR (5:1), long term storage @ central site, then B-C disposal
 - Alternative 4B: PSS / VR
 - Class A → direct disposal @ LLRW site (A)
 - Class B,C → direct B-C disposal (no storage)
- DRC Review – now in process

